REMARKS

Claims 1-30 are pending. Applicants respectfully request the Examiner to take the following remarks into consideration.

In the Office Action dated February 9, 2005, claims 1-30 were rejected under 35 U.S.C. §103(a), as being unpatentable over Ozawa et al. (U.S. Patent No. 5,739,898) in view of Chang et al. (U.S. Patent No. 6,580,072). Applicants respectfully traverse this rejection.

Independent claim 1 recites a method for creating a cross section of at least one feature located on a substrate. The method includes coating the feature with a layer of contrast enhancing material, recoating the feature with a second material different from the contrast enhancing material, the second material having substantially similar milling characteristics as the feature, and milling the feature. The combination of Ozawa et al. and Chang et al. does not disclose all of the features of claim 1.

Ozawa et al. discloses an exposure method and apparatus that includes a nonlinear photosensitive material in which the effective light intensity distribution is nonlinear to the intensity of incident exposure light. (Ozawa et al. at Abstract.) The teachings of Ozawa et al. are directed to forming a high-resolution pattern over the resolution limit of the optical system (Ozawa et al. at col. 2, lns. 41-61), and not to a method of creating a cross-section of at least one feature located on a substrate, as recited by claim 1. The materials disclosed by Ozawa et al. are for creating the features themselves.

As described in paragraph [00012] of Applicant's disclosure, "[s]emiconductor manufacturers generally examine features on a substrate to determine whether the desired features conforms with a specification...In doing so, cross sections of the features are created for imaging evaluation, feature evaluation, and even for feature modeling. The traditional method for creating cross sections of features requires the sample to be cleaved into pieces."

The Examiner concedes that "Ozawa et al. fail to disclose means of milling the substrate." (Office Action at p. 2, section 4.) Applicants agree that Ozawa et al. fails to disclose or suggest a method of creating a cross section that includes milling the feature. However, Applicants also respectfully submit that nowhere does Ozawa et al. disclose or suggest a method for creating a cross section that includes coating the feature with a layer of contrast enhancing material, and recoating the feature with a second material different from the contrast enhancing material, the second material having substantially similar milling characteristics as the feature, as recited by claim 1.

Chang et al. does not cure all of the deficiencies of Ozawa et al. Chang et al. discloses a method for performing failure analysis of Very Large Scale Integrated (VLSI) circuit devices that include copper conductors. (Chang et al. at col. 1, lns. 5-10.) Nowhere does Chang et al. disclose or suggest coating the feature with a layer of contrast enhancing material, and recoating the feature with a second material different from the contrast enhancing material, the second material having substantially similar milling characteristics as the feature, as recited by claim 1. Instead, Chang et al. teaches removing a protective passivation layer that protects the copper, heating the device so as to oxidize the surface of the copper, then milling the copper-oxide and copper layers with a focused ion beam to sever the trace. (Chang et al. at col. 2, lns. 30-38.)

Accordingly, Applicants respectfully submit that claim 1 and claims 2-13 that depend from claim 1 are patentable over Ozawa et al. and Chang et al., and respectfully request that the rejection to claims 1-13 be withdrawn.

Independent claim 14 recites a method for creating a cross section of at least one feature located on a substrate. The method includes patterning the substrate with the feature, the feature comprising a first resist material, coating the feature with a layer of conducting material, recoating the feature with a second resist material, and milling the feature.

As discussed above, Ozawa et al. does not disclose or suggest a method for creating a cross section of at least one feature located on a substrate. Moreover, Ozawa et al. does not disclose or suggest a method for creating a cross section of at least one feature located on a substrate that includes coating the feature with a layer of conducting material, recoating the feature with a second resist material, and milling the feature, as recited by claim 14.

Chang et al. is discussed above and does not cure the all of the deficiencies of Ozawa et al. For example, Chang et al. does not disclose or suggest coating a feature that is made from a first resist material with a layer of conducting material, and recoating the feature with a second resist material.

Accordingly, Applicants respectfully submit that claim 14 and claims 15-19 that depend from claim 14 are patentable over Ozawa et al. and Chang et al., and respectfully request that the rejection to claims 14-19 be withdrawn.

Independent claim 20 recited a method for creating a cross section of at least one feature located on a substrate. The method includes patterning the substrate with the feature, the feature comprising a first dielectric material, coating the feature with a layer of conducting material, recoating the feature with a second dielectric material, and milling the feature.

As discussed above, Ozawa et al. does not disclose or suggest a method for creating a cross section of at least one feature located on a substrate. Moreover, Ozawa et al. does not disclose or suggest a method for creating a cross section of at least one feature located on a substrate that includes coating the feature with a layer of conducting material, recoating the feature with a second dielectric material, and milling the feature, as recited by claim 20.

Chang et al. is discussed above and does not cure the all of the deficiencies of Ozawa et al. For example, Chang et al. does not disclose or suggest patterning the substrate with the feature, the feature comprising a first dielectric material, coating the feature with a layer of conducting material, and recoating the feature with a second dielectric material.

Accordingly, Applicants respectfully submit that claim 20 and claims 21-25 that depend from claim 20 are patentable over Ozawa et al. and Chang et al., and respectfully request that the rejection to claims 20-25 be withdrawn.

Independent claim 26 recites a method for creating a cross section of at least one feature located on a substrate. The method includes patterning the substrate with the feature, the feature comprising a first conducting material, coating the feature with a layer of dielectric material, recoating the feature with a second conducting material, and milling the feature.

As discussed above, Ozawa et al. does not disclose or suggest a method for creating a cross section of at least one feature located on a substrate. Moreover, Ozawa et al. does not disclose or suggest a method for creating a cross section of at least one feature located on a substrate that includes patterning the substrate with the feature, the feature comprising a first conducting material, coating the feature with a layer of dielectric material, recoating the feature with a second conducting material, and milling the feature, as recited by claim 26.

Chang et al. is discussed above and does not cure the all of the deficiencies of Ozawa et al. For example, Chang et al. does not disclose or suggest coating the feature with a layer of dielectric material, and recoating the feature with a second conducting material.

Accordingly, Applicants respectfully submit that claim 26 and claims 27-30 that depend from claim 26 are patentable over Ozawa et al. and Chang et al., and respectfully request that the rejection to claims 26-30 be withdrawn.

All rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,
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